

first region, and not exposing a second region of said surface to light;

covalently coupling a first nucleotide to said nucleic acids on said part of said substrate exposed to light, said first nucleotide covalently coupled to said photoremovable group;

exposing a part of said first region of said substrate to light, and not exposing another part of said first region of said substrate to light to remove said photoremovable groups;

covalently coupling a second nucleotide to said part of said first region exposed to light; and

repeating said steps of exposing said substrate to light and covalently coupling nucleotides until said more than 500 ^{different groups of} nucleotides are formed on said surface.

REMARKS

I. Rejections Under 35 USC 112, Second Paragraph

The Examiner rejects the claims as being unclear in the recitation of different predefined regions/sequences/molecules. The Examiner asserts that the claims should clearly recite different groups of oligonucleotides such that each group consists of oligonucleotides of the same nucleic acid sequence. As per the Examiner's suggestion, the independent claims 105 and 117 have been amended to recite that the predefined regions comprise groups of oligonucleotide molecules of known sequence within the predefined regions. The claims have also been modified to recite that the groups of oligonucleotide molecules differ in monomer sequence from groups of oligonucleotide molecules in other predefined regions. Based on these amendments, it is believed that the claims are clear.

The claims have not been modified to reflect that the molecules are of the same sequence within each region, but only

that the molecules be of known sequence. As discussed with the Examiner in interviews of related cases, it is readily possible, for two different, but known, oligonucleotide molecules to be synthesized within a single predefined region. Such substrates would have wide applicability--the important point is that the molecules be of known sequence within the predefined region. The claims are believed to be clear in this regard and allowable under 35 USC 112, second paragraph.

The Examiner indicates that claims 109 and 114 are confusing because they indicate that the molecules are only 50% pure in the predefined regions. As noted above, the molecules may be intentionally synthesized to have different monomer sequences. Also, there may be inadvertent byproducts in the various regions. Accordingly, Applicants assert that claims 109 and 114 are clear.

The dependency of claim 109 has been corrected, along with the antecedent concern of claim 120.

II. Rejections Under 35 USC 112, Fourth Paragraph

The Examiner rejects claims 107-108 as not limiting the base claim 105. The Examiner equates 0.01 cm^2 with $1 \times 10^{-4} \text{ m}^2$. Actually, 0.01 cm^2 is $1 \times 10^{-6} \text{ m}^2$. Conversely, the Examiner equates 10,000 square microns with $1 \times 10^{-4} \text{ m}^2$. Actually, 10,000 square microns is $1 \times 10^{-8} \text{ m}^2$. Accordingly, the claims equate to the following, and are asserted to be of proper form:

105: $1 \times 10^{-6} \text{ m}^2$

107: $1 \times 10^{-8} \text{ m}^2$

108: $1 \times 10^{-10} \text{ m}^2$.

III. Rejection Over the Art

The Examiner's withdrawal of the art rejections is appreciated.

CONCLUSION

In view of the above claim amendments and remarks, Applicants request that the claims be passed to issue. If the Examiner believes that a telephone conference would in any way facilitate prosecution of the application, the Examiner is invited to contact the undersigned at (415) 326-2400 or Mr. Kaster at (415) 496-2300.

Respectfully submitted,

TOWNSEND and TOWNSEND KHOURIE and CREW

Date: 3/7/91

By: Vern Norviel
Vern Norviel
Reg. No. 32,483

VN:dc
WORK/11509/057-5.P11